ATVS AND UTILITY VEHICLES

HOSTA Task Sheet 6.2

NATIONAL SAFE TRACTOR AND MACHINERY OPERATION PROGRAM

Introduction

They look like fun. They can go fast. They can travel in the woods. They can kill and injure. What are they? They are ATVs and utility vehicles.

In a recent year, 90,000 injuries and 120 deaths were reported due to use of these fun vehicles. The U.S. Consumer Product Safety Commission reports that 4 of every 10 people treated in hospital emergency rooms are younger than age 16. Why would this be the case?

This task sheet discusses safe use of ATVs and utility vehicles as they are used for work and recreational purposes.

All-Terrain Vehicles

As the name implies, all-terrain vehicles (ATVs) can travel almost anywhere. Rough terrain, steep slopes, rutted mountain roads, and muddy conditions make ATV use appealing. Sportsmen, leisure time enthusiasts, and workers use ATVs. ATVs have become a valuable tool for farm and ranch tasks.

ATVs are designed for work. Other task sheets discuss tractor and skid steer stability. Review Task Sheets 4.12, 4.13, and 7.1. Then consider these ATV design features.

- stability
- suspension
- drive lines
- power and speed

Stability: A four-wheel ATV is more stable than a three-wheel ATV. Heavy loads, steep slopes, and "popping the clutch" can cause the ATV to roll or flip backward. Overturns occur with operator actions that change the center of gravity.

Note: Three-wheeler sales have been banned for several years.

Suspension: ATV suspension systems vary with the machine. Less expensive models may use only balloon tires for suspension. These ATVs can bounce and pitch sideways at high speeds. More expensive models use coil springs and shock absorbers to improve traction and steering control.

Drive lines: ATV drive mechanisms vary greatly. Several combinations of clutches, driveshafts, and differential locks are used. Higher speeds and sharp turns can increase the risk of side overturns if the drive wheels are locked together for traction.

Power and Speed: ATV engines vary in size from 100 cc to 700 cc. Transmission gear ratios vary also. Some ATVs can travel over 50 mph. High-speed operation of the ATV increases the risk of loss of control and rollovers.

Remember, ATVs are not toys. They are powerful machines.

Figure 6.2. a. A four-wheeler, or ATV, can be used for many purposes. Respect the ATV for the powerful machine it is.

It is good advice to dispose of a three-wheeler ATV. They turn over easily.

Learning Goals

- To safely use ATVs and utility vehicles for work and recreational purposes

Related Task Sheets:

Injuries Involving Youth	2.1
Age-Appropriate Tasks	2.4
Mechanical Hazards	3.1
Tractor Hazards	4.2
Tractor Stability	4.12
Using the Tractor Safely	4.13
Skid Steers	7.1

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Injury from ATV use most often occurs because of:

A) extra passengers

B) excessive speed

C) road travel

Figure 6.2.b. ATV use as a farm tool calls for strength to control the machine, skill to move and direct the machine, and maturity to understand the consequences of unsafe ATV use. An adult supervisor should work with you to help you learn how to work safely with an ATV.

ATV Operation and Safety

Safety training for ATV use is the first step in being a qualified ATV operator. Local ATV dealers, ATV clubs, and safety professionals from Cooperative Extension and farm organizations may offer safe ATV operation programs. The Specialty Vehicle Institute of America (SVIA) provides training as well. Visit them on the Internet at www.svia.org. At a minimum, use the operator's manual and the safety signs on the ATV to help educate yourself before using the machine.

Here are some guidelines for safe ATV use:

- Manufacturers recommend that ATVs with engine sizes greater than 70cc be sold only for children 12 and older and that ATVs with engines greater than 90cc be sold only for individuals 16 and older. The child's strength, skills, and maturity determine readiness to operate an ATV.
- Carrying passengers increases the risk of overturn injury and death. A second person changes the center of gravity of the machine and the machine's steering ability.
- Know the machine's limitations. Operating on steep terrain, pulling heavy loads, excessive speed, and "wheelie" type starts can result in ATV turnover.
- Wear a full-face shield helmet. The helmet should fit snugly and securely. It should be labeled with the American National Standards Institute (ANSI) Z90.1 label.
- If a face shield is not part of the helmet, wear goggles or a separate face shield, especially at high speeds or in wooded terrain. The protective lens should carry the ANSI Z78.1 label.
- Over-the-ankle shoes with sturdy heels and soles are necessary.
- Gloves and long sleeves are needed for specific jobs.
- Use lights, reflectors, and highly visible flags to increase the ATV's visibility.
- Avoid public roads. Paved and unpaved roads are designed for truck and automotive traffic. ATVs are designed for off-road use. Increased risk for rollovers of ATVs on road surfaces has been shown.
- Check your state's vehicle code for use of the ATV as an agricultural machine. Use of the ATV for agricultural purposes and only incidental road travel may be permitted in your state.

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Utility Vehicles

Utility vehicles are similar to golf carts except they are fitted with cargo boxes to carry work material. The utility vehicle can have four, five, or six wheels depending upon its use. The UV weighs about 1,000 pounds and can carry several hundred pounds of cargo. The machine can be diesel, gasoline, electric, or hydrogen fuel cell powered.

Like other farm machines, the utility vehicle is made for work purposes. Hauling feed, mulch materials, and supplies makes it a convenient transport for small jobs. Like an ATV, the utility vehicle is a tool and not a toy.

Safe operation of the utility vehicle requires the same safe work habits as used with tractors, skid steer loaders, and ATVs.

Safe Utility Vehicle Use

Use the operator's manual and safety signs/decals found on the machine to learn how the utility vehicle operates and what safety practices to observe. A successful operator becomes familiar with a machine before attempting to use it. Ask a qualified operator to show you what to do if no training materials can be found.

The following safety practices should be followed in operating a utility vehicle:

- Some manufacturer's specifications suggest that no operator younger than age 16 should be permitted to operate a utility vehicle.
- With increased amounts of cargo, the utility vehicle's center of gravity is raised. Risk of an overturn increases. Drive slowly and turn smoothly.
- To prevent overturns, secure the load from shifting sideways.
- Avoid driving on steep slopes. It is safer to drive uphill or downhill rather than across a slope. Avoid sharp turns to prevent overturns. Drive to the top or bottom of a slope to make a turn. When approaching a downhill slope, reduce speed before you reach the slope. This will help reduce wear on the brakes.
- Reduce speed over rough terrain to prevent the utility vehicle from bouncing. Operator and riders have been thrown from utility vehicles.
- A second rider should occupy the passenger seat. Do not permit extra riders to ride in the cargo box. Use the handholds. If the utility vehicle has a roll-bar, buckle the seat belt.
- Do not drive near ditches or embankments. Remember if the ditch is 6 feet deep, stay back from the edge by at least 6 feet.
- Use your tractor, skid steer loader, and ATV knowledge to safely operate a utility vehicle.

As with all machinery, use the device as it was designed. Utility vehicles are tools, not toys.

Figure 6.2.c. A utility vehicle is versatile. It can do the smaller jobs that a pick-up truck may be unsuited to do. Remember that the utility vehicle has limitations. Overloading, shifting loads, and sharp braking can cause turnovers.

Utility vehicles can overturn at high speeds and while making sharp turns.

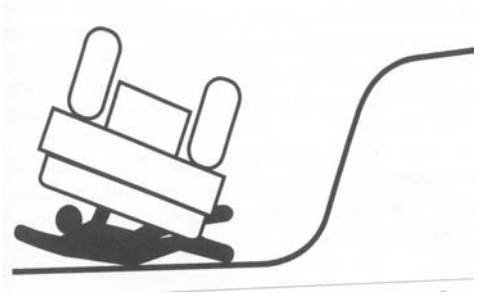

Figure 6.2.d. Avoid steep banks. Utility vehicles can easily overturn. The driver must know the machine and the work area to reduce potential risk of injury. *Safety Management for Landscapers, Grounds-Care Businesses, and Golf Courses, John Deere Publishing, 2001. Illustrations reproduced by permission. All rights reserved.*

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Safety Activities

1. Use the Internet website www.atvsafety.org to solve crossword puzzles or to play word search games related to all-terrain vehicle (ATV) safety.

2. Visit the John Deere website, www.JohnDeere.com, or the Bobcat website, www.bobcat.com, to learn about all-terrain vehicle (ATV) specifications for weight, payload, and engine size.

3. Collect newspaper, magazine, or Internet news articles about ATV and utility vehicle injuries and deaths. Create a poster presentation to display at a local ATV or utility vehicle dealership.

4. What does the designation "100cc engine" represent? Using the math formula for volume of a cylinder (ask your teacher), calculate the diameter and height of the cylinder that would represent a 100cc engine cylinder. Use a sheet of paper to construct the cylinder. Answer the same question for a 500cc engine cylinder.

References

1. Safety Management for Landscapers, Grounds-Care Businesses, and Golf Courses, John Deere Publishing, 2001. Illustrations reproduced by permission. All rights reserved.
2. www.cdc.gov/nasd/ Search the National Ag Safety Database site by topic for ATV information.
3. www.atvsafety.org/Search site for interactive quizzes, word searches, and puzzles.
4. www.svia.org/Search the Specialty Vehicle Institute of America site for ATV information.

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